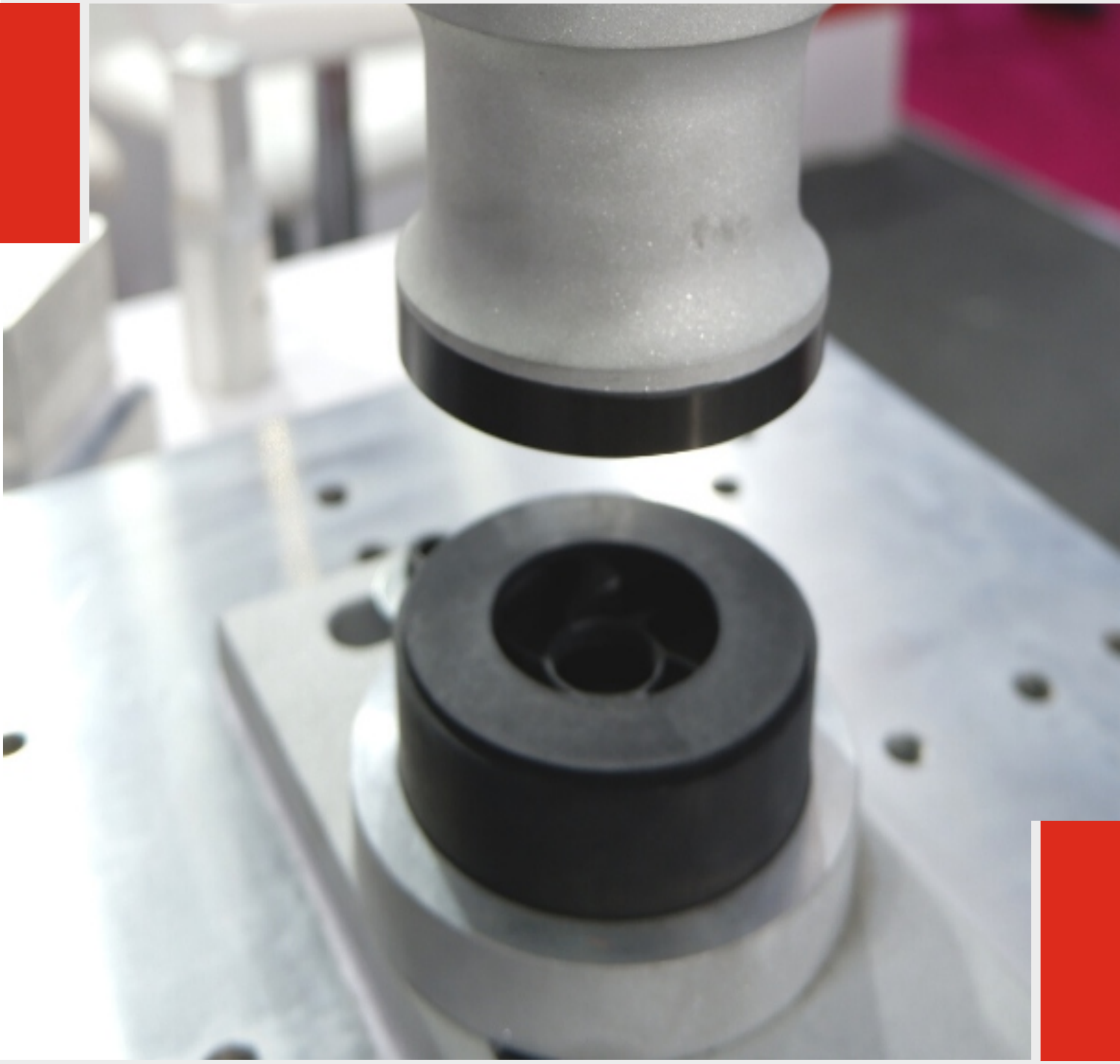
Ultrasonic Plastic Welding Systems

RTUL™



Joining Of Thermoplastics

POWERHOUSE OF ULTRASONIC TECHNOLOGY®

Ultrasonic Solutions For Plastics Joining

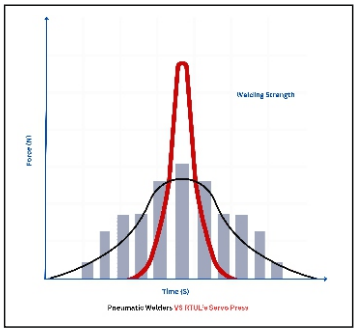
As a joining process for industrial thermoplastics, the ultrasonic method is very well proven in practice. Particularly in the production of mass- produced parts, the process offers definite advantage over previous methods such as for instance high strength, clean weld seams, fast processing times, extremely low rejection rates and low energy consumption.

In addition to its main application which is welding of moulded thermoplastic parts, this technique can be used successfully for riveting, forming, stacking as well as embedding of metal parts into thermoplastic materials.

A standard ultrasonic welding unit comprises the following main components:

Electronic Ultrasonic Generator, Converter, Booster, Sonotrode, Pneumatic Press and Control Unit.

Ultrasonic Plastic Welding (SERVO PRESS)



The Servo setup includes an electric motor, which enables continuous determination of precise positions, speeds and torque via control electronics (Servo controller)

Following objectives of Servo Ultrasonic Welding Press

Better assembling process controls
Excellent Precision and Repeatability
Better weld strength

Servo welding press gives us full assurance of precision & accurate controls.

The main advantage of this setup is that it provides accurate depth controls in Ultrasonic assembling.

Features:

7" Color Touch Screen
Power ON/OFF Key
Home key
Selectable ON / OFF Control (Automatic / Manual)
Selectable Calibration Pulse for Sonotrode Tuning
Setup Mode for Welding Press Setting

Provides 4 different Trigger Modes
Provides 5 different Weld Modes
Torque Movement
Energy Measurement and Control
Distance Measurement and Control
Torque, Speed, Amplitude Control

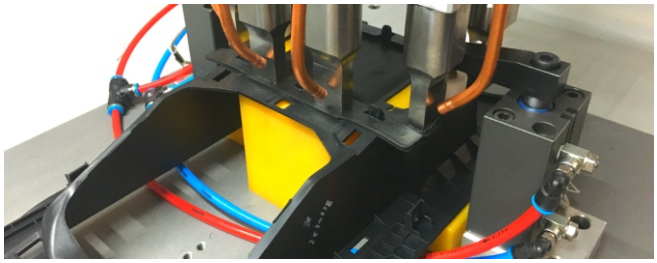
Technical Specifications

	UHG-500/ 1000	WP 750-1000/ 1500	WP 3000-1000/1500/ 2000/3000/4500	Servo Press
Pneumatic Press		WP 750	WP 3000	SWP 1000
Closing Force Max	-	750 N	3000 N	1000 N
Generator	HG-35-500/ 1000	WG-36-1000/ WG-20-1500	WG-20-1000/1500/2000 /3000/4500	1000/1500
Ultrasonic O/p Power (W)	500/1000	1000/1500	1000/1500/2000/ 3000/4500	1000/1500
O/p Frequency (KHz)	20/35	20/36	15/20	20/35
Dimension- Press	Dia 54×220	360×575×1000	410×685×960	450x700x1160
(WxDxH)mm Generator	500×350×220	510×440×220	510×440×220	285X285X110
Weight- Press	0.6/1.2	60	100	130
(Kg) Generator	6	6	6	6
Max. Stroke(mm)		100	100	160
Throat Depth(mm)		150	275	294
Working Table (WxD)mm		300×325	465×410	350x300

Customized solutions for complex projects

Special Purpose machines to meet specific costumers requirement is one of our strong points. For many years, we have designed and built systems, which cater to the precise demands of the costumers.

For Large/Complex components, system with multi converter design (with mother / daughter horns)are available as per specific requirements. Multi-converter units are frequently used in the welding of large area, asymmetrical parts, for example in automobile and apparatus engineering or with toys. The advantage of multi-converter system lies in the construction of small, simple Sonotrodes/Horns which facilitates to optimise the weld quality along the whole weld contour due to local targeting.



Generator AWG 20

RTUL's Ultrasonic Welding components is designed & developed for simple and complex welding and cutting tasks in production lines, and special systems.

All Ultrasonic components receive a 100% quality check and are made at our various production and R&D centers worldwide.

- Frequency 20/35 kHz
- Ultrasonic Power Up to 3000 W Power Output
- Weld modes : Time, Energy , Hand & Actuator
- Halt Conditions: Max power, Max energy, Max time, Max temperature & Max distance
- Local control : 2.4” TFT display with 15 key control
- Data Set : 16 presents
- Net Input : 230V, 50 Hz
- Dimensions : 285 X 400 X 110 mm
- Weight :
- Ultrasonic Converter : Upto 3000 W
- Interfaces:

  Local control (SPS) - (AWG 20/35)
  Web Interface - (AWG 20/35)
  Actuator Control (direct) - (AWG 35)
  RS 485 - All

Generator AWG 35

The ultrasonic welding generator's all-purpose modular design can be easily upgraded in its capacity for bigger samples welding. Change in the system or generator is not needed, the same generator can be upgraded by adding power modules.

- Frequency 35 kHz
- Weld modes are time, energy, hand & actuator
- Ultrasonic power is 1000 W
- Various interfaces as local control (SPS), Web interface, Actuator control (direct) & RS 485
- Halt conditions are Max power, Max energy, Max time, Max temperature & Max distance
- 2.3” monochrome control and 15 key control
- 16 data set
- 230V & 50Hz Net input
- 1000W Ultrasonic converter
- Total weight is 3.5 Kg
- Dimensions as Rack mount: 106x128x446mm, 19 Rack, 21 TE/3TE, Panel mount: 96x110x530mm

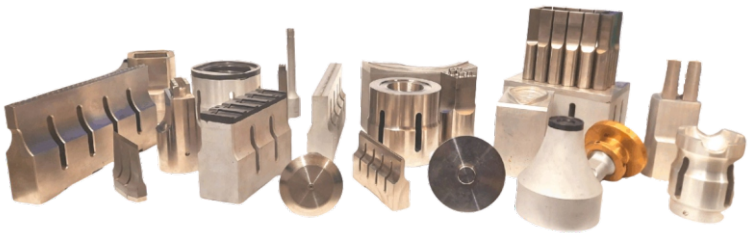
Converter & Booster

RTUL Sonotrodes / Horns are designed based on the state-of-the-art Finite Element Method (FEM), and therefore guarantee optimum oscillation behavior and long service life in all cases.

- Fully enclosed convertor with standard integrated cooling system and connection hood for full turning capacity of 360 Degree
- Novel Booster mounting system for maximum rigidity
- Titanium Booster
- Five standard boosters with transformation ratio of: 0.5/1/1.5/2/2.5
- The whole assembly designed as a “snap-in-unit”
- Ideally suited for installation in special and automatic machines

Sonotrodes

An acoustic tool designed to have a specific longitudinal natural resonant frequency which transfers sound energy to the plastic part. Every Plastic welding job needs the welding tool specially made to required specifications. So also the fixtures. RTUL designs horns of perfect profiles, machined out of the right alloy for longer life and for efficient transmission of ultrasonic power to the welding spot. Developing of custom made horns, is our speciality.



Control Unit (AWC 6)

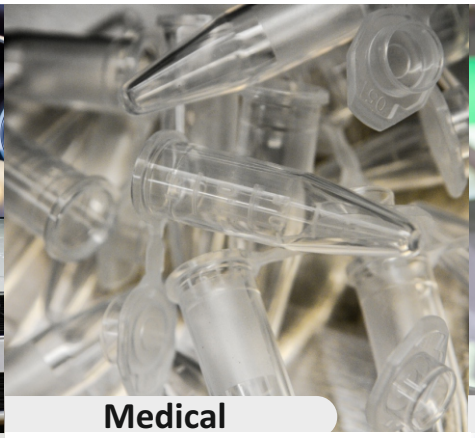
- 7" Colour touch screen.
- Provides 4 different Trigger modes - Time, Force, Distance and Touch.
- Provides 5 different weld modes - Time, energy, Weld Distance, Absolute Distance and
- Maximum Power.
- Force Measurement.
- Energy, Distance Measurement and control.
- Variable pressure profile for more accurate Weld Results.
- Amplitude Profile to weld Few Semi- Crystalline Materials.
- Automatic Saving of last 99999 welding Results.
- User can store 50 different Job Settings. (Data set management)
- Selectable calibration pulse for Automatic Sonotode Frequency Tuning.
- 6 Types of different quality windows
- In-built RTC and diagnostic mode
- Supports 7 different Generators and 5 different Presses.
- USB Interface for receiving Welding summary on PC.
- In-built Rotary Table Interface with Two Sensor Support.
- In-built cutting control controller system.
- In-built Pick and Place System Interface.
- Provides 4 User Programable Inputs and Outputs.

Control Unit (MPS 1)

- Energy Mode option in addition to time mode allowing precise setting of energy as per job requirements.
- Precise time setting with least count of 0.001 second, thus avoiding over welding, deformation, reduction of production rate and excess consumption of power.
- Rotary Table - OFF/ON.
- Amplitude Control- 50-100%.
- Self diagnosis-microprocessor of system helps in calibration and quality control and also acts as a fault finding tool allowing operator to rectify the system.
- Automatic Turning of horn and horn life indication.
- Modular design of system allows easy capacity up-gradation.
- Calibration Pulse - ON/OFF.

Expertise Ultrasonic Solutions

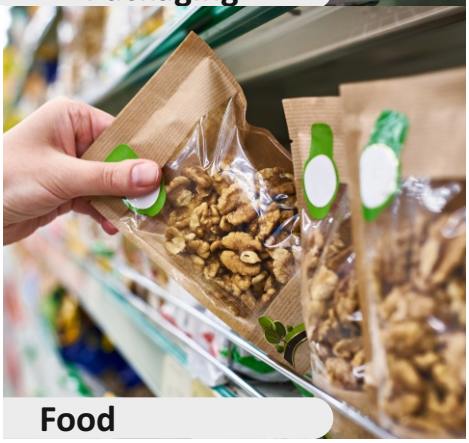

Automotive


Medical


Packaging


Toys


Appliances


Food

RTUL Worldwide

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